

Patent Claims

1. An organic field effect transistor (OFET), which
5 comprises at least a first electrode layer having source and drain electrodes, a semiconducting layer, an insulator layer and a second electrode layer, and in which one of the electrodes (source or drain) in the first electrode layer surrounds the respective other electrode in a two-dimensional manner with the exception of one side or location (the connection side or location) of this electrode, with the result that a current channel, which begins and ends on one side of an electrode of the first electrode layer, can be formed in the semiconducting layer.
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2. The OFET as claimed in claim 1, in which one of the first electrodes respectively bounds the other on three of four sides.
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3. The OFET as claimed in either of the preceding claims 1 and 2, in which the second electrode layer completely covers the current channel and, in addition, at least one other part of one of the first electrodes, 25 this other additionally covered part having a width in the range from 0 to 20 µm and having a length in the range of the length of the current channel.
4. The OFET as claimed in one of the preceding claims, holes and/or interruptions being present in the semiconductor layer in order to reduce leakage currents.
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5. An integrated circuit having at least two OFETs as claimed in one of the preceding claims, the OFETs being arranged in the NAND or NOR gate in such a manner that the connection sides or locations are respectively opposite one another.
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6. The integrated circuit as claimed in claim 5, the connecting lines and/or the inputs and outputs respectively being situated in the region between the connection sides or locations.

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7. The integrated circuit as claimed in either of claims 5 and 6, holes and/or interruptions being provided in the semiconductor layer.

10 8. The integrated circuit as claimed in claim 7, the holes and/or interruptions being situated between the connection sides or locations.

15 9. The integrated circuit as claimed in one of claims 5 to 8, use being made of a through-contact instead of at least one electrical connection.

20 10. The integrated circuit as claimed in claim 9, the through-contact extending at least as far as one side of the OFET (10b).